

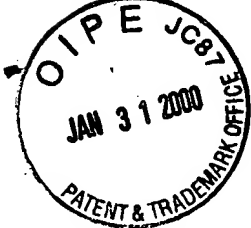
SHEET 1 OF 6

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| FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary) | ATTY. DOCKET NO. 2997-1-3-2 | SERIAL NO. 09/461709 |
| | APPLICANT BARCLAY | |
| | FILING DATE December 14, 1999 | GROUP ART 1651 |

U.S. PATENT DOCUMENTS

| *EXAMINER INITIAL | | DOCUMENT NUMBER | DATE | NAME | CLASS | SUB CLASS | FILING DATE IF APPROP. |
|----------------------|----|--------------------|----------|------------------|-------|--------------|---------------------------|
| Stew | AA | 5,688,500 | 11/18/97 | Barclay | 424 | 93.1 | |
| Stew | AB | 5,547,699 | 8/20/96 | Iizuka et al. | 426 | 615 | |
| Stew | AC | 5,518,918 | 5/21/96 | Barclay | 435 | 257.1 | |
| Stew | AD | 5,492,828 | 2/20/96 | Premuzic et al. | 435 | 245 | |
| Stew | AE | 5,415,879 | 5/16/95 | Oh | 426 | 2 | |
| Stew | AF | 5,272,085 | 12/21/93 | Young et al. | 435 | 254.2 | |
| Stew | AG | 5,133,963 | 7/28/92 | Ise | 424 | 94.1 | |
| Stew | AH | 5,012,761 | 5/7/91 | Oh | 119 | 6.8 | |
| Stew | AI | 4,792,418 | 12/20/88 | Rubin et al. | 554 | 186 | |
| Stew | AJ | 4,758,438 | 7/1988 | Stroz et al. | 426 | 3 | |
| Stew | AK | 4,304,794 | 12/1984 | Dwivedi et al. | 426 | 548 | |
| Stew | AL | 3,924,017 | 12/1975 | Lee et al. | 426 | 548 | |
| Stew | AM | 3,908,026 | 9/1975 | Neely et al. | 426 | 538 | |
| Stew | AN | 3,908,026 | 9/1975 | Neely et al. | 426 | 538 | |
| Stew | AO | 3,667,969 | 6/1972 | Kracauer | 426 | 548 | |
| Stew | AP | 3,647,482 | 3/1972 | Yueh | 426 | 537 | |
| Stew | AQ | 3,296,079 | 1/1967 | Griffin | 424 | 49 | |
| Stew | AR | 5,130,242 | 07/14/92 | Barclay | 435 | 134 | |
| Stew | AS | 4,670,285 | 06/02/87 | Clandinin et al. | 426 | 602 | |
| Stew | AT | 4,871,551 | 10/03/89 | Spencer | 426 | 2 | |

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| EXAMINER <i>Julius K. Wu</i> | DATE CONSIDERED 1-2000 |
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| | FILING DATE December 14, 1999 | GROUP ART 1681 |

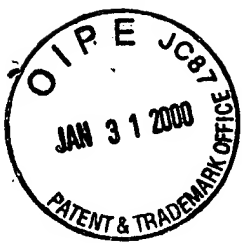
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|------------|----|-----------|----------|---------|-----|-------|--|
| <i>Deu</i> | AU | 5,340,742 | 08/23/94 | Barclay | 435 | 256-8 | |
| <i>Deu</i> | AV | 5,340,594 | 08/23/94 | Barclay | 426 | 49 | |
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FOREIGN PATENT DOCUMENTS

| | | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUB CLASS | TRANSLATION | |
|------------|----|--------------------|----------|---------|-------|--------------|-------------|----|
| | | | | | | | YES | NO |
| <i>Deu</i> | AW | WO 89/00606 | 1/26/89 | PCT | — | — | | |
| <i>Deu</i> | AX | WO 88/10112 | 12/29/88 | PCT | — | — | | |
| <i>Deu</i> | AY | 60-105471 | 10/6/85 | JAPAN | — | — | | |
| <i>Deu</i> | AZ | 58-213613 | 6/10/85 | JAPAN | — | — | | |
| <i>Deu</i> | BA | 58-196068 | 5/17/85 | JAPAN | — | — | | |
| <i>Deu</i> | BB | WO 92/12711 | 08/06/92 | PCT | — | — | | |
| <i>Deu</i> | BC | 1/557/635 | 2/21/69 | FRANCE | — | — | | |
| <i>Deu</i> | BD | 0 231 904 A2 | 08/12/87 | EPO | — | — | | |
| <i>Deu</i> | BE | WO 91/14427 | 10/03/91 | PCT | — | — | | |
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| | FILING DATE December 14, 1999 | GROUP ART 1651 |

OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

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|----|----|--|
| OK | BF | Ainsworth, "Introduction and Keys to Higher Taxa.", pp. 1-7, 1973, in <i>The Fungi. An Advanced Treatise</i> , Vol. 4B, (G.C. Ainsworth et al. eds., Academic Press) |
| OK | BG | Bahnweg et al., "A New Approach to Taxonomy of the Thraustochytriales and Labyrinthulales", pp. 131-140, 1986, in <i>The Biology of Marine Fungi</i> , (S.T. Moss ed., Cambridge University Press) |
| OK | BH | Bartnicki-Garcia, "The Cell Wall: A Crucial Structure in Fungal Evolution", pp. 389-403, 1988, in <i>Evolutionary Biology of the Fungi</i> , (A.D.M. Rayner et al. eds., Cambridge University Press) |
| OK | BI | Behrens et al., "Eicosapentaenoic Acid from Microalgae", p. 623, col. 2, abstract no. 193025d, 1989, Chemical Abstracts, Vol. 111, No. 21, Nov. 20. |
| OK | BJ | Cavalier-Smith, "The Origin of Nuclei and of Eukaryotic Cells", pp. 463-468, 1975, <i>Nature</i> , Vol. 256 |
| OK | BK | Cerda-Olmeda et al., "A Biography of <i>Phycomyces</i> ", pp. 7-26, 1987, in <i>Phycomyces</i> , (Cerda-Olmeda et al. eds., CSH Laboratory) |
| OK | BL | Couch et al., 1973, <i>Lipids</i> , 8(7):385-392 |
| OK | BM | Cruickshank, 1934, "Studies in Fat Metabolism in the Fowl" in <i>Biochem. J.</i> , 28:965-977 |
| OK | BN | Dick, "Saprolegniales", pp. 113-144, 1973, in <i>The Fungi. An Advanced Treatise</i> , (G.C. Ainsworth et al. eds., Academic Press) |
| OK | BO | Ellenbogen, "Polyunsaturated Fatty Acids of Aquatic Fungi: Possible Phylogenetic Significance", pp. 805-811, 1969, <i>Comp. Biochem. Physiol.</i> , Vol. 29 |
| OK | BP | Emerson, "Current Trends of Experimental Research in the Aquatic Phycomycetes", pp. 169-200, 1950, <i>Ann. Rev. Micro.</i> , Vol. 4 |
| OK | BQ | Erwin, "Comparative Biochemistry of Fatty Acids in Eukaryotic Microorganisms", pp. 41-143, 1973, in <i>Lipids and Biomembranes of Eukaryotic Microorganisms</i> , (J. Erwin ed., Academic Press) |
| OK | BR | Findlay et al., "Biochemical Indicators of the Role of Fungi and Thraustochytrids in Mangrove Detrital Systems", pp. 91-103, 1986, in <i>The Biology of Marine Fungi</i> , (S.T. Moss ed., Cambridge University Press) |
| OK | BS | Fisher et al., 1957, <i>J. Nutr.</i> , 63:119-129 |
| OK | BT | Fuller, et al., "Isolation and Pure Culture Study of Marine Phycomycetes", pp. 745-756, 1964, <i>Mycologia</i> , Vol. 56 |
| OK | BU | Gellerman et al., "Methyl-Directed Desaturation of Arachidonic to Eicosapentaenoic Acid in the Fungus, <i>Saprolegnia Parasitica</i> ", pp. 23-30, 1979, <i>Biochim. Biophys. Acta</i> , Vol. 573 |
| OK | BV | Goldstein, "Development and Nutrition of New Species of Thraustochytrium", pp. 271-279, 1963, <i>Am. J. Bot.</i> , Vol. 50 |
| OK | BW | Goldstein et al., "Biology of a Problematic Marine Fungus, <i>Dermocystidium</i> sp. II. Nutrition and Respiration", pp. 468-472, 1969, <i>Mycologia</i> , Vol. 61 |

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| EXAMINER <i>Delish E. Allen</i> | DATE CONSIDERED 1-2000 |
| *EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. | |

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SHEET 4 OF 6

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| | FILING DATE December 14, 1999 | GROUP ART 1651 |

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| JB | BX | Goldstein et al., "Biology of a Problematic Marine Fungus, Dermocystidium sp. I. Development and Cytology", pp. 1-11, 1966, <i>Archiv for Mikrobiologie</i> , Vol. 53.1 |
| JB | BY | Henderson et al., "Lipid Composition and Biosynthesis in the Marine Dinoflagellate <i>Cryptothecodinium Cohnii</i> ", pp. 1679-1683, 1988, <i>Phytochemistry</i> , Vol. 27. No. 6 |
| JB | BZ | Hori et al., "The Nucleotide Sequence of 5S rRNA from a Cellular Slime Mold <i>Dictyostelium Discoideum</i> ", pp. 5535-5539, 1980, <i>Nucl. Acids Res.</i> , Vol. 8 |
| JB | CA | Hunter, "Fish Oil and Other Omega-3 Sources", pp. 1592-1596, 1987, <i>J. Am. Oil Chem. Soc.</i> , Vol. 64 |
| JB | CB | Jong et al., "American Type Culture Collection Catalogue of Fungi/Yeast", pp. 350 and 378, <i>American Type Culture Collection</i> , 17th Edition, 1987. |
| JB | CC | Kates, "Techniques of Lipidology: Isolation, Analysis and Identification of Lipids", pp. 186-278, 1986, <i>Laboratory Techniques in Biochemistry and Molecular Biology</i> , Vol. 3 |
| JB | CD | Kyle, "Microalgae as a Source of EPA-Containing Oils", p. 1251, 1987, <i>J. Am. Oil Chem. Soc.</i> , Vol. 64 |
| JB | CE | Lepage et al., "Improved Recovery of Fatty Acid Through Direct Transesterification Without Prior Extraction or Purification", pp. 1391-1396, 1984, <i>J. Lipid Res.</i> , Vol. 25 |
| JB | CF | Lipstein et al., "The Nutritional and Economic Value of Algae for Poultry" in <i>Algae Biomass</i> , G. Shelef and C.J. Soeder, eds., Elsevier/North-Holland Biomedical Press, 1980, pp. 667-685 |
| JB | CG | Lipstein et al., 1980, <i>Br. Poultry Sci.</i> , 21:9-21 |
| JB | CH | Mannella et al., "Interrelatedness of 5S RNA Sequences Investigated by Correspondence Analysis", pp. 228-235, 1987, <i>J. Mol. Evol.</i> , Vol. 24 |
| JB | CI | Miller, "Isolation and Pure Culture of Aquatic Phycomycetes by Membrane Filtration", pp. 524-527, 1967, <i>Mycologia</i> , Vol. 59 |
| JB | CJ | Moss, "Biology and Phylogeny of the Labrinthulales and Thraustochytriales", pp. 105-129, 1986, in <i>The Biology of Marine Fungi</i> , (S.T. Moss ed., Cambridge University Press) |
| JB | CK | Murty et al., 1961, <i>J. Nutrition</i> , 75:287-294 |
| JB | CL | Navarro et al., 1972, <i>J. Sci. Fd. Agric.</i> , 23:1287-1292 |
| JB | CM | Perkins, "Phylogenetic Considerations of the Problematic Thraustochytriaceus-Labrinthulid-Dermocystidium Complex Based on Observations of Fine Structure", pp. 45-63, 1974, <i>Veroff. Inst. Meeresforsch. Bremerh. Suppl.</i> , Vol. 5 |
| JB | CN | Pigot, "The Need to Improve Omega-3 Content of Cultured Fish", pp. 63-68, 1989, <i>World Aquaculture</i> , Vol. 20 |
| JB | CO | Pohl et al., "Fatty Acids and Lipids of Marine Algae and the Control of Their Biosynthesis by Environmental Factors", pp. 473-523, 1979, <i>Marine Algae in Pharmaceutical Science</i> , (Hoppe et al. eds.) |
| JB | CP | Reiser, 1951, <i>J. Nutrition</i> , 44:159-175 |


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| EXAMINER J. E. W. W. | DATE CONSIDERED 1-2000 |
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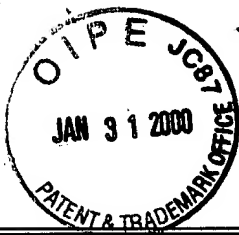


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| Ob | CQ | Ryther, "Cultivation of Macroscopic Marine Algae", pp. 79-88, 1983, <i>Solar Energy Research Institute Aquatic Species Program Review</i> . Proc of the March 1983 Principal Investigators Meeting, SERI/CP-231 1946 |
| Ob | CR | Schlenk, "Urea Inclusion Compounds of Fatty Acids", pp. 243-267, 1954, <i>Prog. Chem. Fats and Other Lipids</i> , Vol. 2 |
| Ob | CS | Schneider, "Cultivation of Micro-organisms. Section 3.2: Fungi", pp. 337-345, 1976, in <i>Marine Ecology</i> , Vol. 3, Part 1. <i>Cultivation</i> , (O. Kinne ed., Wiley and Sons) |
| Ob | CT | Simopoulos et al. (eds.), <i>Health Effects of Polyunsaturated Fatty Acids in Seafoods</i> , Chaps. 2-5, 7, 17, 1986, Academic Press) |
| Ob | CU | Sorokin, "Dry Weight, Packed Cell Volume and Optical Density", pp. 321-343, 1973 in <i>Handbook of Psychological Methods: Culture Methods and Growth Measurements</i> , (J.R. Stein ed., Cambridge University Press) |
| Ob | CV | Sparrow, <i>Aquatic Phycomycetes</i> , pp. 36-39, 1960, University of Michigan Press |
| Ob | CW | Wassef, "Fungal Lipids", pp. 159-232, 1977, <i>Adv. Lipid Res.</i> , Vol. 15 |
| Ob | CX | Weete, "Fatty Acids", pp. 49-95, 1980, in <i>Lipid Biochemistry of Fungi and Other Organisms</i> , (Plenum Press) |
| Ob | CY | Yamada et al., "Production of Arachidonic Acid and Eicosapentaenoic Acid by Microorganisms", p. 1254, 1987, <i>J. Am. Oil Chem. Soc.</i> , Vol. 64 |
| Ob | CZ | Akimoto et al., "Metal Salts Requisite for the Production of Eicosapentaenoic Acid by a Marine Bacterium Isolated from Mackerel Intestines", pp. 504-508, 1991, <i>JAOCS</i> , Vol. 68, July. |
| Ob | DA | Ando et al., "Incorporation of n-3 Polyunsaturated Fatty Acids into Phospholipids of a Marine Bacterium <i>Vibrio</i> sp. Cultivated with Sardine Oil", pp. 169-171, 1992, <i>J. Ferm. Bioeng.</i> , Vol. 73. |
| Ob | DB | Bajpai et al., "Production of Docosahexaenoic Acid by <i>Thraustochytrium aureum</i> ", pp. 706-710, 1991, <i>Appl. Microbiol. Biotechnol.</i> , Vol. 35. |
| Ob | DC | Bajpai et al., "Effects of Aging <i>Mortierella</i> Mycelium on Production of Arachidonic and Eicosapentaenoic Acids", pp. 775-780, 1991, <i>JAOCS</i> , Vol. 68, October. |
| Ob | DD | Bajpai et al., "Optimization of Production of Docosahexaenoic Acid (DHA) by <i>Thraustochytrium aureum</i> ATCC 34304", pp. 509-514, 1991, <i>JAOCS</i> , Vol. 68, July. |
| Ob | DE | Bajpai et al., "Eicosapentaenoic Acid (EPA) Formation; Comparative Studies with <i>Mortierella</i> Strains and Production by <i>Mortierella elongata</i> ", pp. 1294-1298, 1991, <i>Mycol. Res.</i> , Vol 95. |
| Ob | DF | Behrens et al., "Eicosapentaenoic Acid from Microalgae", pp. 253-259, 1989, <i>Novel Microb. Prod. Med. Agric.</i> |
| Ob | DG | Boswell et al., "SCO Production by Fermentative Microalgae", pp. 274-286, 1992, in <i>Industrial Applications of Single Cell Oils</i> (Kyle et al., eds.), American Oil Chemists' Society, Champaign, IL. |
| Ob | DH | Cohen et al., "Overproduction of γ -Linolenic and Eicosapentaenoic Acids by Algae", pp. 569-572, 1992, <i>Plant Physiol.</i> , Vol. 98. |

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| DI | Gandhi et al., "Production of the Polyunsaturated Fatty Acids Arachidonic Acid and Eicosapentaenoic Acid by the Fungus <i>Pythium ultimum</i> ", pp. 1825-1830; 1991, <i>J. Gen. Microbiol.</i> , Vol. 137. |
| DJ | Hansen et al., "Effects of Culture Conditions on Accumulation of Arachidonic and Eicosapentaenoic Acids in Cultured Cells of <i>Rhytidadelphus squarrosus</i> and <i>Eurhynchium striatum</i> ", pp. 1837-1841, 1991, <i>Phytochemistry</i> , Vol. 30. |
| DK | Kendrick et al., "Microbial Polyunsaturated Fatty Acids of Potential Commercial Interest", pp. 59-65, 1992, <i>SIM Industrial Microbiology NEWS</i> , Vol. 42. |
| DL | Kendrick et al., "Lipids of Selected Molds Grown for Production of n-3 and n-6 Polyunsaturated Fatty Acids", pp. 15-20, 1992, <i>LIPIDS</i> , Vol. 27. |
| DM | Kyle et al., "Bioproduction of Docosahexaenoic Acid (DHA) by Microalgae", pp. 287-300, 1992, in <i>Industrial Applications of Single Cell Oils</i> (Kyle et al., eds.), American Oil Chemists' Society, Champaign, IL. |
| DN | Kyle et al., "Microalgae as a Source of EPA-Containing Oils", pp. 117-121, 1988, <i>Proc. - World Conf. Biotechnol. Fats Oils Ind.</i> |
| DO | Radwan, "Sources of C ₂₀ -Polyunsaturated Fatty Acids for Biotechnical Use", pp. 421-430, 1991, <i>Appl. Microbiol. Biotechnol.</i> , Vol. 35. |
| DP | Yazawa et al., "Production of Eicosapentaenoic Acid from Marine Bacteria", pp. 29-51, 1992, in <i>Industrial Applications of Single Cell Oils</i> (Kyle et al., eds.), American Oil Chemists' Society, Champaign, IL. |
| DQ | Yongmanitchai et al., "Screening of Algae for Potential Alternative Sources of Eicosapentaenoic Acid", pp. 2963-2967, 1991, <i>Phytochemistry</i> , Vol. 30. |
| DR | Hagemeister et al., STN Database, AN 88:13,222 Biobusiness for Milchwissenschaft, Vol. 43, No. 3, pp. 153, 155-158 |
| DS | T. Long, STN Database, AN 89:532,569 Caplus for WO 88-US2483. |
| DT | Todorov, D., "Possibilities for Increasing the Biological Value of Alimentary Protein", KHIGZDRAVFODAZ, 1978, 21(3), p. 291-297. |
| DU | Yamada et al., "Production of Dihomo-γ-Linolenic Acid, Arachidonic Acid and Eicosapentaenoic Acid by Filamentous Fungi", pp. 118-138, 1992, in <i>Industrial Applications of Single Cell Oils</i> (Kyle et al., eds.), American Oil Chemists' Society, Champaign, IL. |
| DV | Kyle et al., "Microalgae as a Source of EPA-Containing Oils", pp. 117-121, 1988, <i>Proc. World Conf. Biotechnol. Fats Oils Ind.</i> |

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